



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,342	04/01/2004	Yuu Inatomi	43888-309	5354
7590 12/10/2008 MCDERMOTT, WILL & EMERY 600 13th Street, N.W. WASHINGTON, DC 20005-3096				
EXAMINER				
DOVE, TRACY MAE				
ART UNIT		PAPER NUMBER		
1795				
MAIL DATE		DELIVERY MODE		
12/10/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/814,342

Applicant(s)

INATOMI ET AL.

Examiner

TRACY DOVE

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4, 6-8 and 10-12 is/are pending in the application.
- 4a) Of the above claim(s) 1, 2, 4, 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8 and 10-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to the communication filed on 8/29/08. Claims 1, 2, 4, 6-8 and 10-12 are pending. Claims 1, 2, 4, 6 and 7 are withdrawn as being directed toward a nonelected species. This Action is FINAL, as necessitated by amendment.

Election/Restrictions

Claims 1, 2, 4, 6 and 7 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 11/20/07.

Applicant elected formula 8 (page 10 of the specification) as the organic compound species and a carbonaceous material as the substrate species.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 10 improperly broadens claim 8, which requires the substrate to be a carbonaceous material. Examiner suggests cancelling claim 10.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 1795

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8 and 10-12 are rejected under 35 U.S.C. 102(e)/103(a) as being anticipated by, and alternatively unpatentable over, Nakahara et al., US 6,866,964.

Nakahara teaches a secondary battery (electrochemical device) comprising at least a positive electrode, a negative electrode and an electrolyte, wherein an active material in at least one of the positive electrode and the negative electrode contains a radical compound (2:20-25). Examples of the radical compound include formulas (A1) and (A2) in column 3, lines 5-18. The radical compound may be represented by formula (A5) wherein all of the alkyls R₁ to R₄ are methyl (4:35-67). In formula (A5), X₁ and X₂ may both be an aliphatic group that is saturated or unsaturated, substituted or unsubstituted, and straight, cyclic or branched. The radical compound may be represented by formula (A8) wherein all of the alkyls R₁ to R₄ are methyl and X is an aliphatic group (5:50-6:16). See also formula (A30) at column 30. Conductive auxiliary material may be added for reducing impedance during forming an electrode layer

Art Unit: 1795

comprising a radical compound. Examples of such a material include carbonaceous particles such as graphite, carbon black and acetylene black (25:1-10). The negative electrode collector and the positive electrode collector may be a metal foil or metal plate (25:53-61). The mixture including the radical compound and carbonaceous particles is applied to the current collector. Thus the claims are anticipated.

The claims are alternatively unpatentable. Nakahara does not explicitly teach the elected species of Formula 8 in the present specification. However, Nakahara teaches the radical compound may be represented by formula (A8) wherein X is an aliphatic group. The aliphatic group contained in the elected species is one of multiple aliphatic groups. A 35 U.S.C. 102/103 rejection is considered proper where it is unclear if the reference teaches the claimed elected invention with sufficient specificity. The elected radical compound of formula 8 is at least obvious in view of the teachings by Nakahara because no criticality has been shown for the specific aliphatic group of the claimed elected invention. Since both the claimed invention and the prior art teach similar materials (a radical compound mixed with a carbonaceous material), the covalent bond limitation of the claimed invention is considered inherent in the teachings of Nakahara.

*

Claims 8 and 10-12 are rejected under 35 U.S.C. 102(b)/103(a) as being anticipated by, and alternatively unpatentable over, Nakahara et al., WO 02/082570 and/or under U.S.C. 102(e)/103(a) as being anticipated by, and alternatively unpatentable over, Nakahara et al., US 7,226,697.

Note US 7,226,697 will be used to discuss the teaching of both Nakahara references since WO 02/082570 was published in Japanese.

Nakahara teaches a charge storage device such as a battery wherein a positive electrode comprises a nitroxyl compound having a structure of a nitroxyl cation moiety represented by formula (I) in an oxidized state while having a structure of a nitroxyl radical moiety represented by formula (II) in a reduced state. The reaction is represented by formula (A) (abstract). Preferably, the nitroxyl compound is a compound containing a cyclic structure represented by general formula (1a) in an oxidized state. In formula (1a), R1 to R4 may each represent an alkyl having 1 to 4 carbon atoms and X represent a bivalent group forming a five-to seven-membered ring. Formula (1a) may be part of a polymer where X is part of a side chain in the polymer or of a main chain of the polymer. The nitroxyl compound is particularly preferably a polymer having a side chain comprising the structure represented by formula (1a) (2:10-30). A preferred nitroxyl compound is represented by formula (1) in column 3. In addition to active material, a positive electrode may comprise other known constituents; for example, a conductivity enhancing material including carbon materials such as charcoal, graphite, carbon black and acetylene black (7:45-57). The negative electrode current collector and the positive electrode current collector may be made of nickel, aluminum, copper, gold, silver, titanium, aluminum alloy or stainless steel (8:49-63). Thus the claims are anticipated.

The claims are alternatively unpatentable. Nakahara does not explicitly teach the elected species of Formula 8 in the present specification. However, Nakahara teaches

Art Unit: 1795

the nitroxyl compound may be represented by formula (1) wherein formula (1) is part of a polymer. A 35 U.S.C. 102/103 rejection is considered proper where it is unclear if the reference teaches the claimed elected invention with sufficient specificity. The elected radical compound of formula 8 is at least obvious in view of the teachings by Nakahara because no criticality has been shown for the specific polymer group (repeat unit structure) of the claimed elected invention. Since both the claimed invention and the prior art teach similar materials (a radical compound mixed with a carbonaceous material), the covalent bond limitation of the claimed invention is considered inherent in the teachings of Nakahara.

Response to Arguments

Applicant's arguments filed 8/29/08 have been considered but are not found persuasive. Applicant asserts both Nakahara '697 and '964 fail to disclose an electrode comprising an electrode current collector made of metal and an electrode material mixture including a carbonaceous material attached on the electrode current collector. Examiner disagrees. Both Nakahara references teach a carbonaceous material is mixed with the radical compound and then applied to a metal current collector. See discussion of references above. In the remarks section on page 6, lines 5-7 Applicant states that "carbonaceous materials have a large number of surface functional groups. As a result, a carbonaceous material can be readily bonded with organic compounds via a covalent bond". The Examiner has taken the position that the covalent bond limitation of the claimed invention is inherent in the teachings of both Nakahara references because the references teach an organic radical compound mixed with a carbonaceous

Art Unit: 1795

material and applied to a metal current collector. Both the nitroxyl radical of the elected invention and the nitroxyl radical of Nakahara function as the electrode reaction site.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is 571-272-1285. The examiner can normally be reached on Monday-Thursday (9:00-7:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Tracy Dove/

Primary Examiner, Art Unit 1795

December 1, 2008